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WORKING PAPER:

Medicaid Physician Prices and Changes in Medical Care Use

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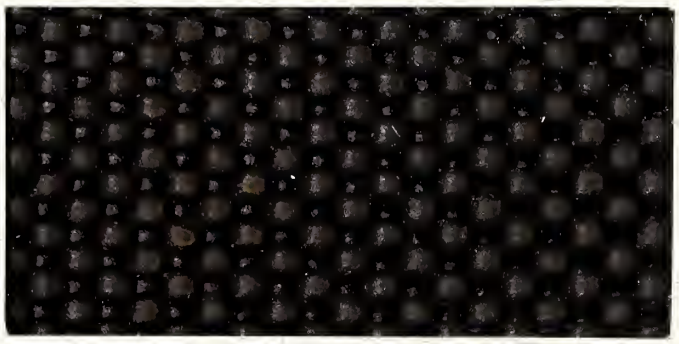

D R A F T

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Philip J. Held

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I. INTRODUCTION

Changes in Medicaid expenditures for physician services are driven by three major forces--physician fees, changes in service use by Medicaid-eligible patients, and changes in physician supply. State cost containment efforts have led to tight controls on Medicaid physician fees in many states. The recent Omnibus Budget Reconciliation Act (Holahan, 1984) legislation directly mandated reductions in AFDC eligibility. Both of these policy initiatives are designed to limit Medicaid outlays for physicians' care. At the same time, however, the growth in the supply of physicians is likely to ease access to Medicaid services and lead to increasing Medicaid expenditures. Since the physician supply increase is likely to continue throughout the rest of the century, serious long-term consequences for Medicaid programs and state budgets may ensue.

Because of the complexity of Medicaid law and regulations, states' choices of policies to control cost escalation are limited. Physician payment policy, however, has been a matter of considerable state discretion, and states have responded with substantial control over rates. States such as California, New York, Massachusetts, Pennsylvania, Connecticut, Illinois, Ohio, and New Jersey have kept Medicaid physician fees either constant for long periods of time or well below private physicians' fees.

This study examines changes in program cost as measured by changes in ambulatory care use by Medicaid eligibles over the 1976-1978 period. During this period, changes took place in all three of the major forces driving program cost. First, a major change in physician reimbursement levels took place in September 1976 in the California Medicaid program. Prior to 1976, Medicaid physician fees in California were based on a usual, customary, and

reasonable (UCR) charge system as reflected in 1968 physician billings for individual procedures (with one 2.5 percent increase in 1972). The 1976 change did three things. It eliminated the interphysician differences in fees that are inherent in a UCR system, it increased fees, and it also "twisted" the fee structure so that the relative reimbursement rates were established in a fashion that favored particular procedures. At the same time, however, Medicaid fees remained quite low relative to private physicians charges or Medicare reimbursement rates (59 percent of Medicare rates in 1979).

Second, California made several changes in Medicaid eligibility which substantially increased the number of Medicaid eligibles. The primary change occurred on July 1, 1976 when the California legislature passed a bill simplifying the process of determining eligibility for the medically needy and the medically indigent, resulting in higher eligibility rates for both. For the three-year period covered by this analysis, the medically needy increased by 148.6 percent and the medically indigent by 119.8 percent. The number of persons in the AFDC program increased by about 12 percent over the same period.* During most of this period, the number of persons with private insurance, Medicare, or no insurance was decreasing. In effect, therefore, the rate of transfer to the Medicaid population from the general population exceeded the rate of growth in the general population. The OBRA eligibility provisions in the more recent past have had the reverse effect; our analysis also provides some indication of the likely effect of these eligibility changes on Medicaid utilization.

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*In another paper (Held and Holahan, 1985), we focus on the separate effects of changes in physician prices, physician supply, and patient demand. Here, we concentrate on the effect of fee changes on the proportion of eligibles using ambulatory care.

Finally, during the study period, the total physician supply in California, like the rest of the U.S., increased both in absolute terms and relative to the increase in population. The ratios of internists and pediatricians to population increased most dramatically, by 20.3 percent and 22.2 percent, respectively. As the number of physicians continues to grow substantially in the coming years, the issue of increased physician participation in Medicaid as a consequence of increases in physician supply is of increasing policy relevance. By 1990, for example, the number of persons per physician will fall from 578 to 409, representing a compound annual rate of decline of 2.8 percent.*

Unlike much of the conventional wisdom, previous empirical research (Hadley, 1979; Held and Holahan, 1985) has shown, with remarkable consistency that, as Medicaid prices are increased (decreased) relative to private prices, the amount of services supplied by physicians to Medicaid patients increases (decreases) and the amount supplied to private patients decreases (increases). Typically, however, the literature has focused on physicians and the supply changes induced by changes in prices and has not provided a theoretical model to explain these results in terms of patient demands; nor have previous supply explanations been able to explain whether the increased supply takes the form of changing the number of Medicaid patients treated, or the number of services provided to a given pool of patients. This paper begins to fill that gap.

We develop two alternative theoretical models to show how demand and supply can interact to produce this previously reported supply-side result. We then use patient-specific data from California Medicaid records to estimate

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*See American Medical Association, 1980; and Statistical Abstract, 1984.

the degree of responsiveness (elasticity) of physician supply to price changes. We then attempt to estimate how much of this response can be explained in terms of new patients and how much in terms of more services provided to the same patients. The final section puts our results into policy perspective.

II. TWO MODELS TO EXPLAIN WHY SERVICES SUPPLIED TO MEDICAID PATIENTS INCREASE AS MEDICAID FEES INCREASE

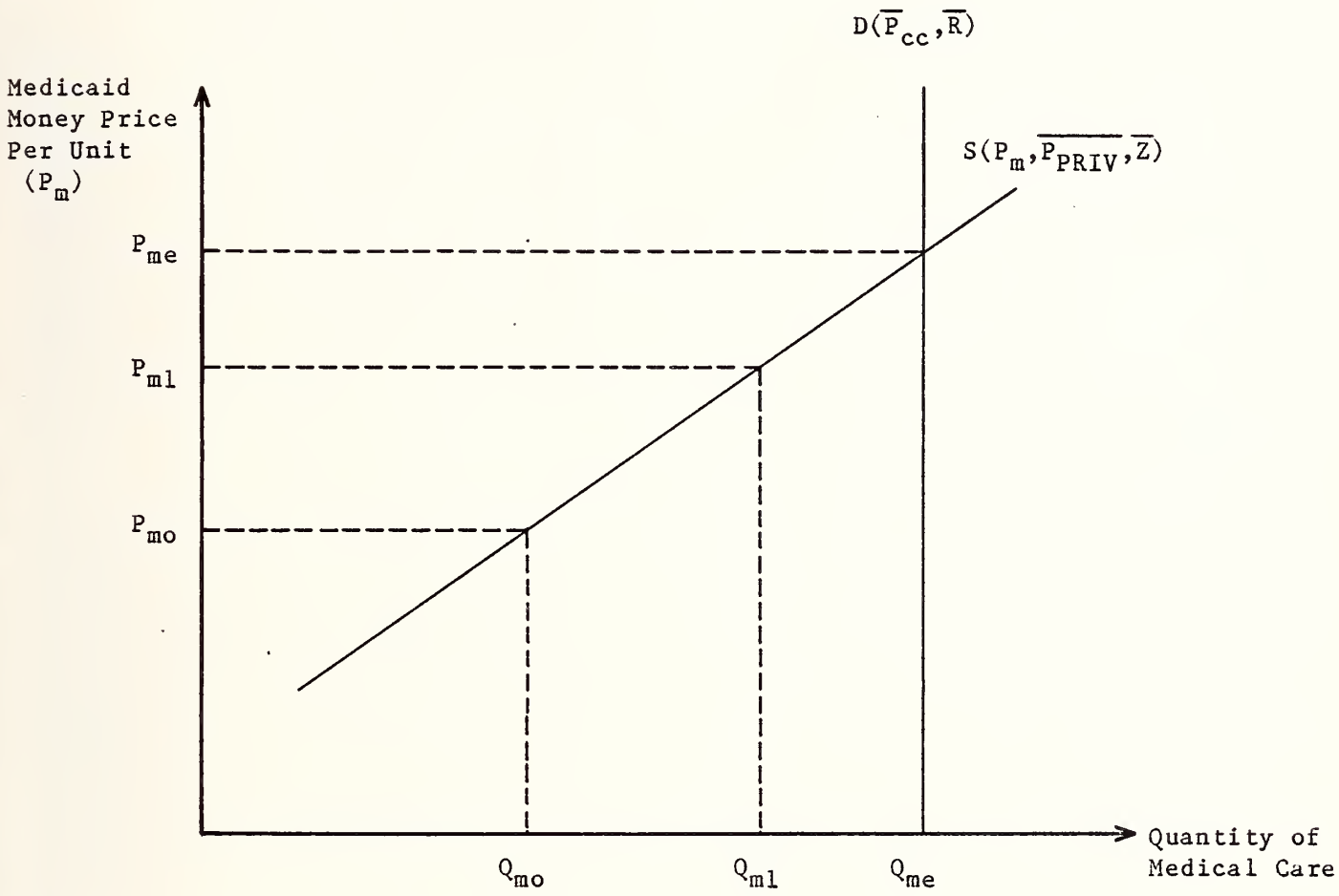
Medicaid patients generally do not face any out-of-pocket payments for medical care services. Unlike the Medicare program, which has deductibles and coinsurance, and also allows the physician to bill the patient in excess of the government's payment, physicians must accept a state's Medicaid reimbursement rate as payment in full. Therefore, the generally posited price discriminatory model of physician supply suggest that, with respect to the Medicaid dollar price, an individual physician faces a perfectly inelastic Medicaid demand curve (i.e., the effective Medicaid demand and marginal revenue curve is horizontal up to a limit determined by the Medicaid demand). Under this model, changes in the Medicaid price should not change the amount of services demanded, other things equal.

How, then, do we explain the very robust empirical finding that physician supply of services to Medicaid patients changes in response to changes in the Medicaid reimbursement rate? Economic theory suggests two possible explanations, shown in Figures 1 and 2, respectively.

Figure 1 posits a situation of excess demand in the Medicaid market. This is consistent, for example, with the Feldstein explanation regarding medical care in general and not just Medicaid (Feldstein, 1970). That is, there is more medical care demand among the Medicaid patient population than

Figure 1

The Market Demand and Supply of Medicaid Services, Case 1: Given Convenience Price and Excess Medicaid Demand



Where:

Q_{mo} = quantity of Medicaid services supplied at price P_{mo} (excess demand = $Q_{me} - Q_{mo}$),

Q_{m1} = quantity of Medicaid services supplied at price Pm1 (excess demand = $Q_{me} - Q_{m1}$),

Q_{me} = quantity of Medicaid services supplied at price P_{me} (no excess demand),

D = the Medicaid market demand schedule, i.e., the amount demanded at zero money price with convenience cost ($\overline{P}_{cc}$) and Medicaid population and area characteristics ($\overline{R}$) held constant,

S = the Medicaid market supply schedule, i.e., the amount supplied at various Medicaid prices (P_m) with prices for medical care in private markets ($\overline{P_{PRIV}}$) and other physician and market characteristics ($\overline{Z}$) held constant.

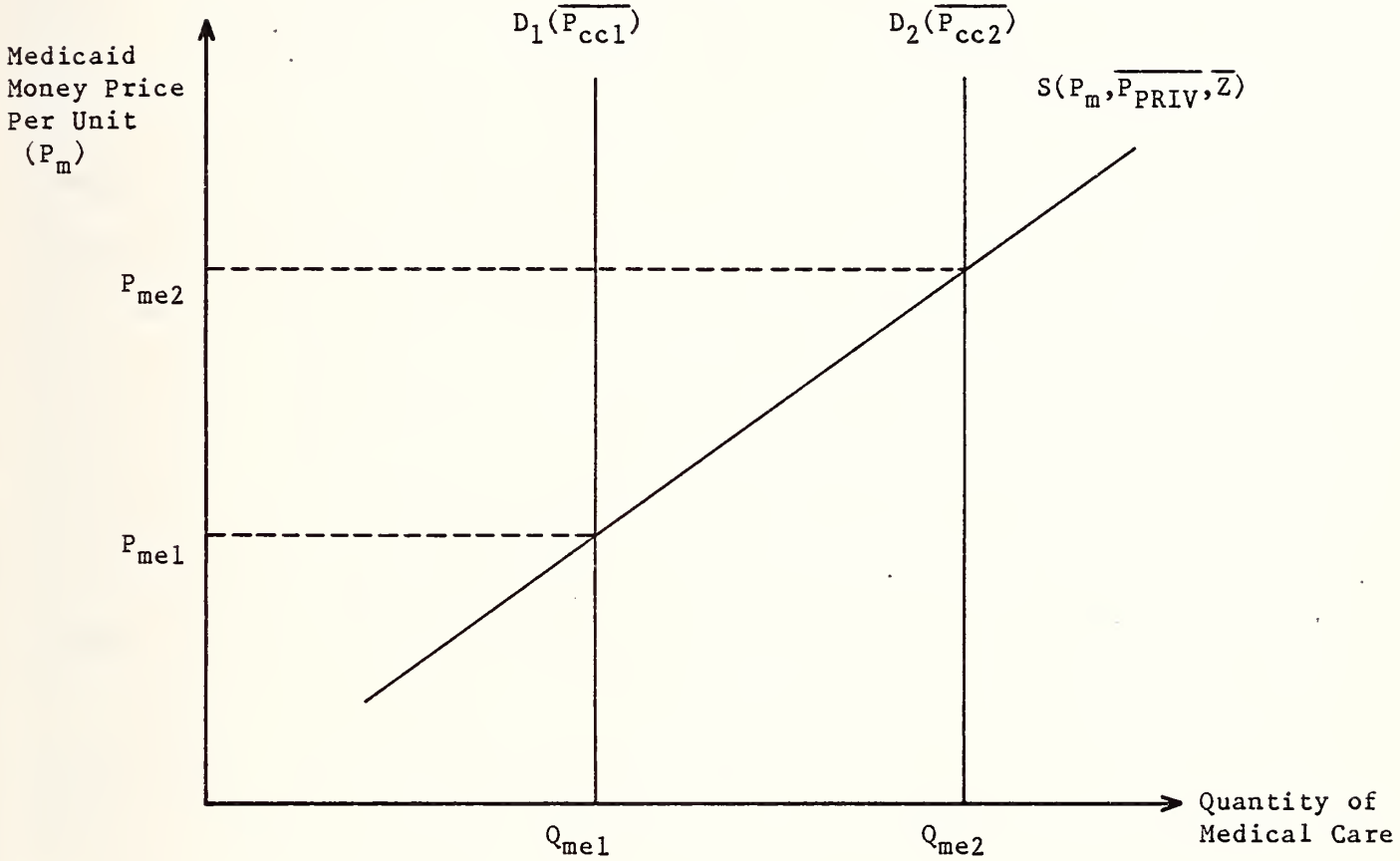
physicians are willing to fill at the prevailing Medicaid reimbursement rate. Figure 1 shows a supply curve for physicians' services to Medicaid patients that slopes up to the right. This indicates that, other things equal, the higher the price paid by the state the more services will be supplied to Medicaid patients. At the Medicaid money price of P_{me}, services supplied just equal services demanded and the market is in equilibrium. The price perceived by the patient is shown as P_{cc}. We have called this the "convenience price" which reflects money costs (such as transportation or phone bills incurred) and time costs (such as travel time and waiting in the physician's office).

But this market is not at equilibrium. The Medicaid money price is actually at P_{mo}, producing excess demand of $Q_{me} - Q_{mo}$. In this situation, an increase in the state's Medicaid reimbursement rate to, say, P_{m1} would yield increased Medicaid service consumption as physicians respond to the higher price P_{m1}, increasing services supplied and consumed to Q_{m1}. Note that even at the new price of P_{m1}, some excess demand still exists because Q_{m1} is still less than Q_{me}, the quantity that would be demanded if the market were in equilibrium.

Figure 2, in contrast, posits a situation in which there is no excess demand. In this instance, the change in amount supplied and demanded stimulated by a change in the Medicaid money price takes place through changing convenience costs. As noted, although Medicaid patients do not pay any money price for services received, they do face other costs such as convenience costs. It has been shown (ACTON, 1970) that the Medicaid demand schedule has a negative slope with respect to these costs (i.e., the lower these costs, the greater the quantity of medical care demanded at any given money price).

Figure 2

The Market Demand and Supply of Medicaid Services, Case 2:
Changing Convenience Prices and No Excess Demand



Where:

Q_{me1} = quantity demanded and supplied at Medicaid money price per unit (P_m) of P_{me1} and convenience cost price of $\overline{P_{cc1}}$,

Q_{me2} = quantity demanded and supplied at Medicaid money price per unit of P_{me2} and convenience cost price of $\overline{P_{cc2}}$,

D_1 = Medicaid demand schedule at convenience price $\overline{P_{cc1}}$,

D_2 = Medicaid demand schedule at convenience price $\overline{P_{cc2}}$, $(\overline{P_{cc2}} \prec \overline{P}_{cc1})$.

S = Medicaid supply schedule at various prices of P_m with private prices ($\overline{P_{PRIV}}$) and other characteristics ($\overline{Z}$) held constant.

This market is in equilibrium. The convenience price to patients is shown as P_{cc1}, the Medicaid money price is P_{me1}, and the equilibrium quantity demanded and supplied is Q_{me1}.

What happens if the price Medicaid offers physicians is raised to P_{me2}? The physicians, as before, will be willing to increase the services they supply to Medicaid patients. But since there is no excess demand, the increase in physician accessibility will not be accompanied by an increased demand or services. According to this model, the fact that physicians are willing to supply more Medicaid services due to the increase in money price will lead to reductions in waiting times for an appointment and potentially lower travel costs as more physicians choose to participate in the program--in other words, a reduction in the convenience costs of obtaining services. The convenience cost (in terms of Figure 2) will go from P_{cc1} to P_{cc2}. This will cause the demand schedule for Medicaid services to shift to the right, and the quantity of medical demand and supply will increase to Q_{me2}.

Our data do not allow us to distinguish between these two possible explanations. Work by Held and Holahan (1984) suggests that excess demand in Medicaid markets may not be as common as generally believed, at least in California. Their results showed that physicians supplied more services where there were more Medicaid eligibles, other things equal, leading us to favor the changing convenience price model.

Data and other issues related to variable definitions are presented in Appendices A and B.

III. RESULTS

Whether or not a person is considered eligible to receive Medicaid services is determined by a set of eligibility criteria. Those persons who satisfy these criteria are defined as the eligible pool. It is well known, however, that in any given time period, not everyone who is eligible actually receives medical care. For example, in the California population analyzed in this study, 77.8 percent of the females eligible for assistance under the Aid to Families with Dependent Children program and 68.4 percent of those eligible under the disability criteria used ambulatory physician care in a given six-month period. In other words, 22 percent of the AFDC females and 32 percent of the disabled did not make any visits to a physician during a six-month period.

In order to examine whether or not the proportion of eligibles who used ambulatory care changed as a function of fee changes, we employed a model of ambulatory physician care use which estimates Medicaid use as a function of service price (both private and Medicaid), patient characteristics, characteristics of the local service market, and a variable (year binary) to capture any year-specific influences that are independent of the other variables measured.* Research has repeatedly shown that physicians participating in Medicaid behave as price discriminating monopolists, and therefore respond to some combination of the price of a private visit and the price of a Medicaid visit. For this reason, we include both prices in our estimation model.

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*Patient characteristics include age cohort, whether AFDC or disabled, and sex of Medicaid beneficiary. Ambient market characteristics include whether the area is rural or not, per capita income, and persons per physician. See the appendices for more detail.

Two econometric problems present themselves with the approach chosen, one with the dependent variable (use) and the other with the specification of private price. The first problem is that the dependent variable is a binary (use/no use) measure which can lead to biased measures of the standard errors of estimates if the typically used estimation technique (ordinary least squares, OLS) is used. Consequently, a probit estimation was used which provides asymptotically unbiased standard errors of the estimates. The second problem is that use of the private prices actually charged by the physician for each patient might lead to simultaneous equation bias, because the physician a patient chooses is not necessarily independent of the price charged. Two measures were taken to counteract this problem. County averages of the billed price per relative value unit (RVU) were used.* And an instrumental variable technique was used to estimate a two-stage least squares (TSLS) version of the model, in addition to the probit technique.

The price elasticities on the probability of ambulatory care use are shown in Table 1. The pattern is clear: higher Medicaid prices, other things equal, lead to an increase in the pool of Medicaid eligibles receiving ambulatory physician care. While the estimates vary somewhat with the method of estimation, it is clear from the elasticity estimates that the quantitative effect is relatively large, with estimates spanning the 1.0 level--indicating, for example, that a 10 percent increase in the Medicaid price would lead to a 10 percent increase in the proportion of eligibles who receive physician care. For example, if Medicaid prices were increased by 10 percent and the

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*Primarily rural counties were aggregated into reasonably homogeneous groups; the nonrural counties were generally left as single units.

Table B-1

Means and Standard Deviations of the Variables Used in the Estimation of User Non-User Ambulatory Status Adults, California Medicaid, 1976-1978[a]

Independent Variables	Mean	Standard Deviation
Patient Characteristics		
Sex: Female Equals 1; 0 Otherwise	0.73	0.44
Eligibility:		
AFDC (Reference Group)	0.40	--
Disabled Equals 1; 0 Otherwise	0.60	0.49
Age Group Binaries:		
(50-64) (Reference Group)	0.38	--
(15-24)	0.16	0.36
(25-34)	0.26	0.44
(35-49)	0.20	0.40
Area Characteristics[b]		
"Rural" Binary Equals 1; 0 Otherwise	0.14	0.34
Population Per Physician	6.64 E+2	2.22 E+2
Proportion of Physicians in General Practice	0.17	0.07
Prices ($):		
Medicaid Allowed Amount/RVU	0.63	0.06
Billed Amount/RVU	0.97	0.08
Year Binaries		
1976 (Reference Group)	0.37	--
1977 Equals 1, 0 Otherwise	0.29	0.46
1978 Equals 1, 0 Otherwise	0.34	0.47
Mean of Dependent Variable	0.78	--

NOTE: AFDC is Aid to Families with Dependent Children; Disabled is aid to persons determined to be disabled. E is the exponent of 10.

[a]Statistics are for the sample of 6404 individuals used in the two-stage least squares (TSLS) estimates shown in the following table. The AFDC sample was restricted to females only.

[b]These variables were generally defined on the basis of a county. However, sparsely populated counties with few population centers were aggregated into county groups. "Rural" refers to 33 of these county groups. RVU is Relative Value Unit.

Table B-2

Statistical Estimates of the Probability of Being a User of Ambulatory Care in a Six-Month Period, Adults, California Medicaid, 1976-1978[a]

Indpendent Variables	Method of Estimation[b]			
	Probit		TSLS	
	Partial D.	(t)	b	(t)
Patient Characteristics				
Sex: Female Equals 1; 0 Otherwise	0.33	(22.46)	0.13	(10.27)
Eligibility:				
AFDC (Reference Group)	-	-	-	-
Disabled Equals 1; 0 Otherwise	-0.03	(-2.06)	-0.18	(-14.64)
Age Group Binaries:				
(50-64) (Reference Group)	--	--	--	--
(15-24)	-0.12	(-6.02)	-0.11	(-7.28)
(25-34)	-0.09	(-4.80)	-0.08	(-6.15)
(35-49)	-0.06	(-2.69)	-0.04	(-3.20)
Area Characteristics				
"Rural" Binary Equals 1; 0 Otherwise	-0.36 E-2	(-0.12)	0.01	(0.69)
Population Per Physician	0.86 E-4	(1.70)	0.83 E-4	(1.60)
Prop. of Physicians in Gen. Practice	-0.24	(-1.43)	-0.15	(-1.03)
Prices:				
Medicaid Allowed Amount/RVU	0.96	(2.62)	2.13	(1.77)
Billed Amount/RVU	-0.29	(-2.16)	-0.11	(-0.72)
Year				
1976 (Reference Group)	-	-	-	-
1977 Equals 1; 0 Otherwise	-0.06	(-1.61)	-0.18	(-1.52)
1978 Equals 1; 0 Otherwise	-0.07	(-1.61)	-0.21	(-1.53)
Constant	-0.24	(-1.11)	-0.30	(-0.43)
* * * * * * *				
Chi-square	644.1		n.a.	
R^2	n.a.		0.092	
Sample Size	4566		6404	

[a]See prior table for basic definitions and statistics.

[b]Partial D. is the partial derivitive or the partial of the probability function that y equals one evaluated at the mean of the distribution of y. t is the t statistic of the estimated parameter. TSLS is two-stage least squares. The Billed Amount per RVU (Relative Value Unit) was the parameter estimated via an instrumental variable technique to correct for possible simultaneous equation bias.

Table B-3

Means and Standard Deviations of the Regressions for Number of Visits and Total RVUs per Six Months, AFDC Females, California, 1976-1978

Independent Variables	Mean	Standard Deviation
Patient Characteristics		
Age Group Binaries (Years)		
(Reference is L.T.1)		
(1-14)	0.14	0.35
(15-24)	0.14	0.35
(25-34)	0.26	0.44
(35-49)	0.13	0.34
(50-64)	0.14	0.35
Binary Equals 1 if only 1 PSC	0.73	0.44
Binary Equals 1 if Proportion of Total RVUs Was to a Specialist	0.40	0.49
Months of Eligibility for Medicaid	16.25	2.72
Area Characteristics		
Prices ($):		
Medicaid Allowed Amount/RVU	0.63	0.05
Billed Amount/RVU	0.97	0.07
No OPDs in County Group Equals 1; 0 Otherwise	0.09	0.29
No Medical Residents in County Equals 1; 0 Otherwise	0.29	0.45
Number of Resident Population per Physician	0.07	0.08
San Francisco Binary Equals 1; 0 Otherwise	0.03	0.17
Number of Medicaid Eligibles per Physician	73.86	38.72
Proportion of Physicians in General Practice	0.18	0.08
Proportion of Area Population That Is Non-White	0.08	0.07
"Rural" Binary Equals 1; 0 Otherwise	0.14	0.34
Year Binaries		
1976 (Reference Group)	0.38	0.46
1977 Equals 1; 0 Otherwise	0.31	0.46
1978 Equals 1; 0 Otherwise	0.31	0.46
Mean of Dependent Variable		
Visits	2.45	3.10
RVUs	49.10	62.82

NOTE: L.T. is less than; PSC is Primary Source of Care (see Hamcke, 1984, for details); OPD is Outpatient Department. Medical residents refers to graduate medical students. See prior tables for other definitions.

Table B-4

Regression Parameters for Ambulatory Services,
AFDC Eligibles, California, 1976-1978

Independent Variables	Visits b (t-statistic)	RVUs b (t-statistic)
Patient Characteristics		
Age Group Binaries (Years) (Reference is L.T.1)		
(1-14)	-1.27 (-10.73)	-21.83 (-9.30)
(15-24)	-0.94 (-7.86)	-11.62 (-4.92)
(25-34)	-0.45 (-5.20)	-4.36 (-2.10)
(35-49)	-0.14 (-1.20)	0.63 (0.26)
(50-64)	0.23 (1.92)	6.13 (2.61)
Binary Equals 1 if only 1 PSC	-0.72 (-9.88)	-15.14 (-10.53)
Binary Equals 1 if Proportion of Total RVUs Was to a Specialist	2.02 (29.98)	46.92 (35.08)
Months of Eligibility	0.03 (2.15)	0.13 (0.51)
Area Characteristics		
Prices ($):		
Medicaid Allowed Amount/RVU	4.76 (2.16)	71.31 (1.63)
Billed Amount/RVU	3.70 (3.24)	77.22 (3.41)
No OPDs in County Group Equals 1; 0 Otherwise	0.10 (0.71)	2.34 (0.88)
No Medical Residents in County Equals 1; 0 Otherwise	-0.43 (-3.86)	-11.96 (-5.37)
Number of Residents per Physician	-2.52 (-4.01)	-74.88 (-5.99)
San Francisco Binary Equals 1; 0 Otherwise	-0.36 (-1.77)	-5.84 (-1.55)
Number of Medicaid Eligibles per Physician	-7.01E-4 (-0.55)	-0.08 (-3.11)
Proportion of Physicians in General Practice	0.52 (0.52)	-13.21 (-0.66)
Proportion of Area Population That Is Non-White	1.90 (3.10)	56.62 (4.32)
"Rural" Binary Equals 1; 0 Otherwise	0.17 (0.94)	7.32 (2.03)
Year Binaries		
1976 (Reference Group)		
1977 Equals 1; 0 Otherwise	-0.88 (-3.50)	-14.30 (-2.87)
1978 Equals 1; 0 Otherwise	-1.16 (-3.76)	-18.01 (-2.94)
Constant	-3.68 (-2.13)	-53.44 (-1.56)
* * * * * * *		
R^2	0.16	0.19
Sample Size	8225	8225

NOTE: See prior tables for definitions of acronyms.

Table 1

Private and Medicaid Price Elasticities on the Probability of Using Ambulatory Physician Services In a 6-Month Period California, 1976-1978

Specification and Measure of Price	Dependent Variable: User of Ambulatory Physician Care Method of Estimation Probit	TSLS
Medicaid Price	0.85	1.86
	(2.67)	(1.77)
Private Price	-0.39	-0.16
	(-2.16)	(-0.72)
Sample Size	4566	6404

Note: The t-statistics are shown in parentheses. See Appendix Table B-1 for a definition and basic statistics of all variables. See Appendix Table B-2 for the complete specification of the equations estimated.

elasticity were 1.0, the probability of use would increase for AFDC females from 77.8 percent to 85.6 percent (77.8 + (0.1 * 77.8)).

The effect of private price on user status also has the theoretically expected effect: higher private prices, other things including Medicaid price equal, leads to a decrease in the pool of Medicaid eligibles receiving ambulatory care. The quantitative effects, however, are substantially less than the Medicaid price effect.

These results provide clear support for the view that changing the Medicaid price does change the proportion of Medicaid-eligible patients who receive care. If one were to consider the use of physician visits as a measure of access, then higher Medicaid prices lead to higher access.

Table 2 shows the estimated effects on ambulatory physician utilization as measured by two separate but related indicators: total visits per beneficiary per six months and total RVUs per beneficiary per six months. As Table 2 shows, both the number and total value of visits per six months increase with increases in the Medicaid price. As can be seen, the full effect of the price changes on total RVUs (and therefore program cost) is only approximated by number of visits, indicating that RVUs per visit actually decrease with higher Medicaid prices.*

Two possible explanations are offered in the literature for why RVUs per visit should decrease with higher Medicaid prices. First, the additional supply brought forth by the higher Medicaid price is for patients who are more healthy than the average previous user and, consequently, require fewer RVUs

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*Since there is almost perfect correlation between RVUs and dollars, the elasticity of price on program cost is nearly the same as that for total RVUs. For the 1976-1978 period, the price per RVU was approximately 63¢.

Table 2

Price Elasticities of Ambulatory Physician Visits for California Medicaid Beneficiaries, by Location of Service, 1976-1978[a]

Location of Visits and Price Specification	Measure of Ambulatory Physician Visits	
	Visits Per 6 Months	Total RVUs Per 6 Months
Private Office		
Specification 1:		
Medicaid Price Per RVU[a]	1.22	0.92
	(2.16)	(1.63)
Private Price Per RVU[b]	1.47	1.53
	(3.24)	(3.41)
All Locations		
Specification 1:		
Medicaid Price Per RVU[a]	0.79	0.43
	(1.74)	(0.95)
Private Price Per RVU [b]	1.45	1.49
	(3.99)	(4.16)
Specification 2:		
Medicaid Price Per Visit	0.10	0.79
	(0.57)	(4.36)
Private Price Per Visit[b]	1.78	0.64
	(2.20)	(2.64)

[a]The t-statistics are shown in parentheses. See Appendix Table B-3 for variable definitions and basic statistics. See Appendix Table B-4 for a complete specification and results of estimated equations. Unless otherwise indicated, estimation is by ordinary least squares. All prices were measured by the mean of the county group in which the beneficiary was located. Elasticities are estimated at the mean of the sample. The Medicaid price per visit was estimated from a 3-month census of all visits in a physician's office, i.e., all Medicaid claims and not just the samples used in this analysis.

[b]Estimated as an endogenous variable.

per visit. The second focuses on possible physician demand inducement or target income notions. This argument suggests, for example, that when Medicaid price is reduced, physicians respond by either providing more services or billing for more RVUs per visit. We cannot resolve this issue definitively; however, the results of the previous section--showing an expansion of the proportion of eligibles who become users as a consequence of higher Medicaid price--lend some support to the first explanation.*

The positive coefficient on private price is also unexpected, indicating that an increase in private price corresponds to an increase in Medicaid visits; but in this case, there is no plausible explanation. Perhaps it indicates that our attempt to remove simultaneity bias by using county averages was unsuccessful.

IV. CONCLUSIONS

Our results suggest the following:

1. The physician Medicaid supply schedule is positively sloped. Even though Medicaid patients face no out-of-pocket costs, increases in Medicaid fees for physician services lead to substantial increases in the ambulatory Medicaid care use by the Medicaid population. Medicaid price elasticities of greater than 0.7 are indicated.

2. Increases in Medicaid fees lead to increases in the proportion of Medicaid eligibles who use ambulatory physician services. Again,

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*This assumes, of course, that the patients added to the user pool are, indeed, lower down the rankings of medical care service need.

the elasticities appear to be large, with point estimates of 0.7 or higher. This result is new to the literature, and helps us to disentangle the issue of whether an increased supply by physicians for Medicaid patients leads to more patients being treated or just more services going to the same pool of patients. It is clear from these results that higher Medicaid prices lead to higher proportions of eligibles who use the medical system. This result does not preclude more visits for existing users.

3. There seems to be an unequivocally positive relationship between Medicaid price paid to the physician and the number of visits per beneficiary per time period. The same is true for the total ambulatory care RVUs, although the result is not as quantitatively large as the increase in visits because of the negative relationship between Medicaid price and RVUs per visit. One plausible explanation for the negative relationship between medicaid price and RVUs per visit is that the additions to this pool of ambulatory care users which result from a higher price have a higher health status than the average and, consequently, lower needs for care.

4. The positive effects of private price on visits and total RVUs is unexpected and may indicate that our attempt to remove simultaneity by using county averages was unsuccessful. Economic theory and other research both lead us to expect the effect of private price on number of Medicaid visits to be negative.

V. IMPLICATIONS FOR POLICY

1. Higher Medicaid prices mean higher use of ambulatory care by the Medicaid population. This notion of higher use is akin to the term "access" to medical care. Whether this higher use is desired or not depends on how much ambulatory medical care society wishes the Medicaid population to receive. But the choice of what is too little or too much involves normative policy questions beyond the scope of this analysis.

2. Undoubtedly, ambulatory physician services are the principal avenue of entry into the medical care system. Equally clearly, higher Medicaid physician fees lead to higher ambulatory care costs. But does this lead to higher total Medicaid costs? The answer depends on whether or not inpatient care is a <u>complement</u> to or <u>substitute</u> for ambulatory care. For example, does the fact that physicians see more Medicaid patients more often mean that a "stitch in time saves nine" and that Medicaid patients will be hospitalized less? Or does more physician visits imply more conditions found that need inpatient care? One need not be a cynic to believe the latter to be true; there are undoubtedly many conditions that patients present which should be "repaired" when the cost to the patient is zero. In all probability, the world is a mix with some conditions preventable and some in which more access will mean more total care and better health. The question is an empirical one as to what the average is.

   The Health Insurance Study (Newhouse et al., 1982) suggests that, for the adult population as a whole, inpatient and ambulatory

care are complements and that higher ambulatory care leads to higher inpatient care and higher total costs. While the results of this study are impressive, it is not clear that they are directly applicable to the Medicaid population. The importance of the issue makes it a high priority item for future research.

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APPENDIX A

DATA

The data on which the study is based were computed from eligibility and medical claims records for two groups of the California Medicaid (Medi-Cal) population. The first group consisted of nonaged (under 65 years of age), female AFDC recipients of cash assistance, excluding the 7-14 year old cohort and those who lived in Los Angeles County.* The sample for this group was drawn from Medi-Cal eligibility records in a manner which oversampled two age cohorts (less than 1 year, and 50-64 year olds) and rural counties.** The second group consisted of the disabled, again excluding those who lived in Los Angeles County. The sample for this group was a systematic random sample of the Medi-Cal eligibles. The data presented in this paper are based on 8,622 female AFDC and 8,151 disabled eligibles evenly distributed over the three years 1976-1978.

The predominant source of care concept (PSC) is intended to reflect the type of setting in which an individual typically receives ambulatory medical care (physician visits). Our presumption is that the PSC reflects a beneficiary's usual point of entry into the health care system.

A PSC was assigned to each Medicaid eligible who had an ambulatory physician visit over a given 6-month peiod on the basis of the frequency of visits that the person had to each of the various settings. The setting with the

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*Los Angeles County was excluded from the study because of a unique reimbursement policy for outpatient facilities which did not permit identification of individual services provided to patients seen in hospital outpatient departments. Also, for efficiency in data processing, drug claims were not included and males were excluded from the AFDC sample.

**The total sample drawn was approximately 50,000 per year for the AFDC sample and 10,000 per year for the disabled; the results presented here are based on smaller subsamples.

highest number of visits by the individual during the period was selected as the PSC for that person (see Hamcke, 1984, for more details).

Including nonusers as a separate category ensures that all eligibles are included in one of a set of mutually exclusive categories. The nonuser category includes those who used medical care without being a user of ambulatory physician visits; such occurrences are rare.

The estimations for the quantitative results (Appendix B, Tables B-3 and B-4) include some patient and area characteristics not discussed elsewhere in this paper. The definitions of these variables are included in either the tables or in a footnote.

The analysis of user and nonuser status (Appendix B, Tables B-1 and B-2) does not include the very young. The exclusion of these two age groups was based on the Health Insurance Study Results (Newhouse, 1982) which showed that money prices did not have much impact on children.

APPENDIX B

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